

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A thermal transfer roller, comprising:
an outer shell and an inner shell coaxially positioned within the outer shell to define a continuous annulus between an inner surface of the outer shell and an outer surface of the inner shell;

~~at least an inlet~~ a first end chamber and a second end chamber in fluid communication with the annulus, the first end chamber directing fluid to the annulus, the second end chamber directing fluid away from the annulus;

a passage in communication with the ~~annulus~~ first end chamber, the passage extending ~~between an inlet end~~ through a center of the thermal transfer roller and ~~an outlet end of the thermal transfer roller~~ to the first end chamber; and

~~a plurality of~~ at least twenty inlet channels in the ~~inlet~~ first end chamber, each inlet channel having a first end closer to the passage and a second end closer to the annulus;

wherein each inlet channel becomes progressively wider ~~along a plane which includes a circumference of the inlet end chamber between the first end and the second end thereof~~ from the first end of the inlet channel to the second end of the inlet channel.

2. (Currently Amended) The thermal transfer roller of Claim 1, further comprising:

~~an outlet end chamber in fluid communication with the annulus; and~~

a plurality of outlet channels in the ~~outlet~~ second end chamber, each outlet channel having a first end closer to the annulus and a second end;

wherein the first end of each outlet channel is wider than the second end of the outlet channel.

3. (Currently Amended) The thermal transfer roller of Claim 1, wherein the ~~inlet~~ first end chamber comprises a plurality of radially extending walls defining the inlet channels.

4. (Currently Amended) The thermal transfer roller of Claim 1, wherein the ~~inlet~~ first end chamber comprises an insert including a plurality of baffles defining the inlet channels.

5. (Canceled)

6. (Canceled)

7. (Currently Amended) The thermal transfer roller of Claim 1, wherein the ~~inlet~~ first end chamber comprises at least ~~about 30~~ thirty of the inlet channels.

8. (Currently Amended) The thermal transfer roller of Claim 2, wherein the ~~outlet~~ second end chamber comprises a plurality of radially extending walls.

9. (Currently Amended) The thermal transfer roller of Claim 2, wherein the ~~outlet~~ second end chamber comprises an insert including a plurality of baffles.

10. (Currently Amended) The thermal transfer roller of Claim 2, wherein the ~~outlet~~ second end chamber comprises at least ~~about 10~~ ten of the outlet channels.

11. (Currently Amended) The thermal transfer roller of Claim 2, wherein the ~~outlet~~ second end chamber comprises at least ~~about 20~~ twenty of the outlet channels.

12. (Currently Amended) The thermal transfer roller of Claim 2, wherein the ~~outlet~~ second end chamber comprises at least ~~about 30~~ thirty of the outlet channels.

13. (Original) The thermal transfer roller of Claim 1, wherein the annulus comprises at least one spiral channel.

14. (Currently Amended) A thermal transfer roller, comprising:
an outer shell and an inner shell coaxially positioned within the outer shell to define a continuous annulus between an inner surface of the outer shell and an outer surface of the inner shell;
~~an inlet~~ a first end chamber positioned at ~~an inlet~~ a first end of the thermal transfer roller and in communication with the annulus;
~~a plurality of at least twenty~~ inlet channels in the ~~inlet~~ first end chamber, each having a wider end closer to the annulus and a narrower end further away from the annulus, wherein each inlet channel becomes progressively wider ~~along a plane which includes a circumference of the inlet end chamber between~~ from the narrower end ~~and to~~ the wider end thereof;
~~an outlet~~ a second end chamber positioned at ~~an outlet~~ a second end of the thermal transfer roller and in communication with the annulus;
a plurality of outlet channels in the ~~outlet~~ second end chamber, each having a wider end closer to the annulus and a narrower end further away from the annulus, wherein each outlet channel becomes progressively wider ~~along a plane which includes a circumference of the outlet end chamber between~~ from the narrower end ~~and to~~ the wider end thereof; and
a passage in communication with the ~~annulus~~ first end chamber, the passage extending ~~between the inlet end of the thermal transfer roller and the outlet end~~ through a center of the thermal transfer roller and to the first end chamber.

15. (Currently Amended) The thermal transfer roller of Claim 14, comprising at least [[10]] ten of the outlet channels in ~~each~~ the second end chamber.

16. (Currently Amended) The thermal transfer roller of Claim 14, comprising at least [[20]] twenty of the outlet channels in ~~each~~ the second end chamber.

17. (Currently Amended) The thermal transfer roller of Claim 14, comprising at least [[30]] thirty of the inlet channels in ~~each~~ the first end chamber.

18. (Currently Amended) The thermal transfer roller of Claim 14, comprising radially extending walls in each end chamber which define the inlet and outlet channels.

19. (Currently Amended) The thermal transfer roller of Claim 14, comprising a baffle insert in each end chamber, defining the inlet and outlet channels.

20. (Currently Amended) A roller assembly including a thermal transfer roller, the thermal transfer roller comprising:

~~an inlet~~ a first end chamber in communication with a source of fluid;

a continuous annulus in communication with the ~~inlet~~ first end chamber, the continuous annulus defined by an inner surface of an outer cylindrical shell and an outer surface of an inner cylindrical shell;

~~a plurality of~~ at least twenty inlet channels in the ~~inlet~~ first end chamber, each inlet channel having a wider end closer to the annulus, and a narrower end, wherein adjacent inlet channels are separated by a wall having a substantially uniform thickness; and

a passage in communication with the ~~annulus~~ first end chamber, the passage extending ~~between an inlet end~~ through a center of the thermal transfer roller and ~~an outlet end of the thermal transfer roller~~ to the first end chamber.

21. (Currently Amended) The ~~thermal transfer roller~~ roller assembly of Claim 20, wherein the thermal transfer roller further comprising comprises:

~~an outlet~~ a second end chamber in communication with the annulus; and

a plurality of outlet channels in the ~~outlet~~ second end chamber, each outlet channel having a wider end closer to the annulus, and a narrower end.

22. (Currently Amended) [[A]] The roller assembly of Claim 20, further comprising ~~the thermal transfer roller of Claim 20, and~~ a second roller.

23. (Currently Amended) [[A]] The roller assembly of Claim 20, comprising at least two of said thermal transfer rollers ~~of Claim 20~~.

24. (Currently Amended) [[A]] The roller assembly of Claim 21, further comprising ~~the thermal transfer roller of Claim 21, and~~ a second roller.

25. (Canceled)